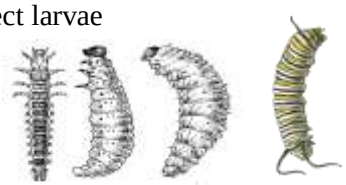
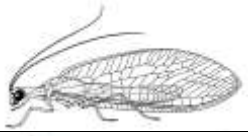
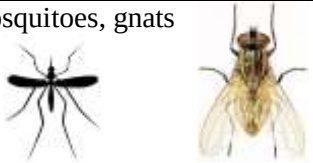
How to Identify Common Invertebrate Groups ("Orders")

Common name	Order	How to identify
Snails and Slugs 	Gastropoda ("Class")	have a **spiral shell** (except for slugs) and **a soft body without segments** or exoskeleton; may have tooth-like projections over the mouth of the shell to keep out predators; a millimeter long to as long as your finger
Beach Fleas, Scuds 	Amphipoda	are **shrimp-like** in appearance, with an arched and laterally flattened pinkish or grayish body; usually near the shore, **some hop**; most amphipods are aquatic but a few are terrestrial
Pillbugs, Sowbugs, Roly-Polies 	Isopoda	look like short, oblong millipedes, but only **seven pairs of legs**; have antennae; may have feelers at the end of the abdomen; **some can roll into a ball**, some cannot; live in moist places in the leaf litter or under objects
Earthworms 	Oligochaeta	have **no legs and lack an obvious head and tail**, but note the wide fleshy band called the clitellum located near the front of the animal; obvious body segments; most earthworms are not native to North America
Millipedes 	Diplopoda ("Class")	are long, worm-like animals with **15 or more body segments** and **two pairs of legs on most segments**; none have as many as a thousand legs; the body is either flattened or sausage-shaped; important decomposers in the soil
Centipedes 	Chilopoda ("Class")	are long, worm-like animals with **15 or more body segments** and only **one pair of legs on each segment**; usually have long antennae and enormous jaws; harmless in the US; they are major predators (can bite finger)
Insect larvae 	Many insect orders	have 0 to 3 pairs of true legs (caterpillars and some wasp larvae have extra pairs of "prolegs"); some look worm-like, some are C-shaped, some are active crawlers; unlike worms, **all have distinct heads** (fly larvae may have very small heads); a larva is the immature stage of any insect that undergoes complete metamorphosis
Spiders 	Araneae	have **eight legs and two body segments** joined at a thin waist; abdomen does not have segments; most have eight eyes; most use silk to catch food, for shelter, or to protect their eggs
Daddy-long-legs, Harvestmen 	Opiliones	most have **eight long, jointed legs** and appear to have a **single round or oval body part**; they are NOT venomous; they do not spin webs and are not found in webs; most are found on trees, walls, the ground, or in leaf litter
Mites and Ticks 	Acari	have **eight short legs** (some parasitic forms have lost some or all of their legs); heads are small but sucking mouthparts can be obvious; **small to microscopic**; they maybe parasites or free-living; some are orange or red
Springtails 	Collembola	are **tiny, jumping, wingless** insects that live in soil, decaying logs, and leaf mold (they jump by releasing a forked structure on their abdomen); color varies from white to red to mottled; very abundant but hard to see because of small size; various feeding habits

Dragonflies and Damselflies 	Odonata	have **large wings** and are strong, rapid fliers (just try to catch one!); they are visual predators with **huge eyes**; dragonflies are typically larger, with wings out-stretched horizontally at rest, while damselflies are smaller with narrower wings which they hold up above them when perching (except for spreadwings); some dragonflies migrate long distances
Moths and Butterflies 	Lepidoptera	have **four wings, covered with scales that form often colorful patterns** and come off like dust when handled; mouthparts form a coiled tube, used to extract nectar; butterflies have club-tipped antennae; moths may have feathery antennae
Grasshoppers, crickets, katydids 	Orthoptera	front wing is thin and narrow; broad hind wings fold fan-like under front wings (young have only wing buds); color varies; chewing mouthparts; **large hind legs for jumping**
Earwigs 	Dermaptera	have long, slender bodies with **pincer-like structures**, called cerci, on the end of their abdomen; adults usually have four wings (some have none); when at rest, the membranous hind wings fold under the short and leathery front wings
Woodroaches 	Dictyoptera	have an **oval, flattened body** and **long, hair-like antennae**; have slender front and hind legs and are often fast runners; some have wings, but others are wingless; in some species the hind wings fold under leathery front wings
Lacewings 	Neuroptera	are soft-bodied green or brown insects with **four membranous wings that have many veins**; wings are held roof-like over the body when at rest; **antennae are usually long** and have many segments; adults are often weak fliers
True bugs 	Hemiptera	body is broad or long and narrow; front wings are half leathery and half membranous and expose a **triangle** where they fold across the back of abdomen, forming a V or Y on the back; have **long, narrow piercing-sucking mouthparts**
Leafhoppers, Aphids, Cicadas (and others) 	Hemiptera	are closely related to the True Bugs, with similar mouth-parts; many have four wings, although some, such as some aphids, don't have wings; wings at rest are held roof-like over the body; **antennae are often short** and bristle-like
Bees/Wasps 	Hymenoptera	have **four clear wings** (unlike flies, see below); abdomen usually is narrowly attached to thorax by a **thin "waist"**; often have a stinger (or egg laying tube) at the tip of the abdomen; bees are typically hairy for carrying pollen
Ants 	Hymenoptera ("Family" Formicidae)	is one commonly-seen family within the Hymenoptera; **waist has one or two "bumps" (petioles) on it**; ants are social insects in which the **majority are wingless**, sterile workers (females); reproductive males and females have wings
Beetles 	Coleoptera	hind wings fold beneath **hardened front wings**; front wings make a line straight down their back where they meet, forming the letter T on their backs (wings may or may not cover entire abdomen); have chewing mouthparts; antennae come in a variety of shapes
Flies, mosquitoes, gnats 	Diptera	are usually small and soft-bodied; **have only one pair of large, clear wings** (hind wings are reduced to two tiny knobbed structures called halteres that help flies keep their balance while flying); most have **very large eyes**, taking up most of the head; some have coloration mimicking bees